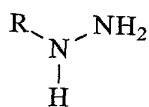
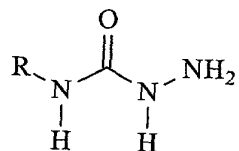


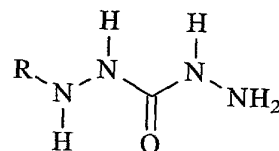
# FIGURE 1



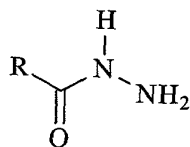
hydrazine



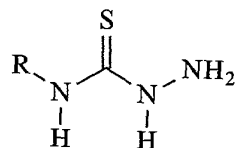
semicarbazide



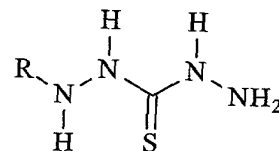
carbazine



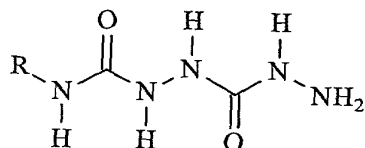
hydrazide



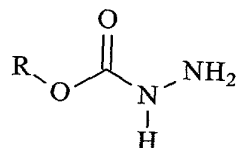
thiosemicarbazide



thiocarbazine

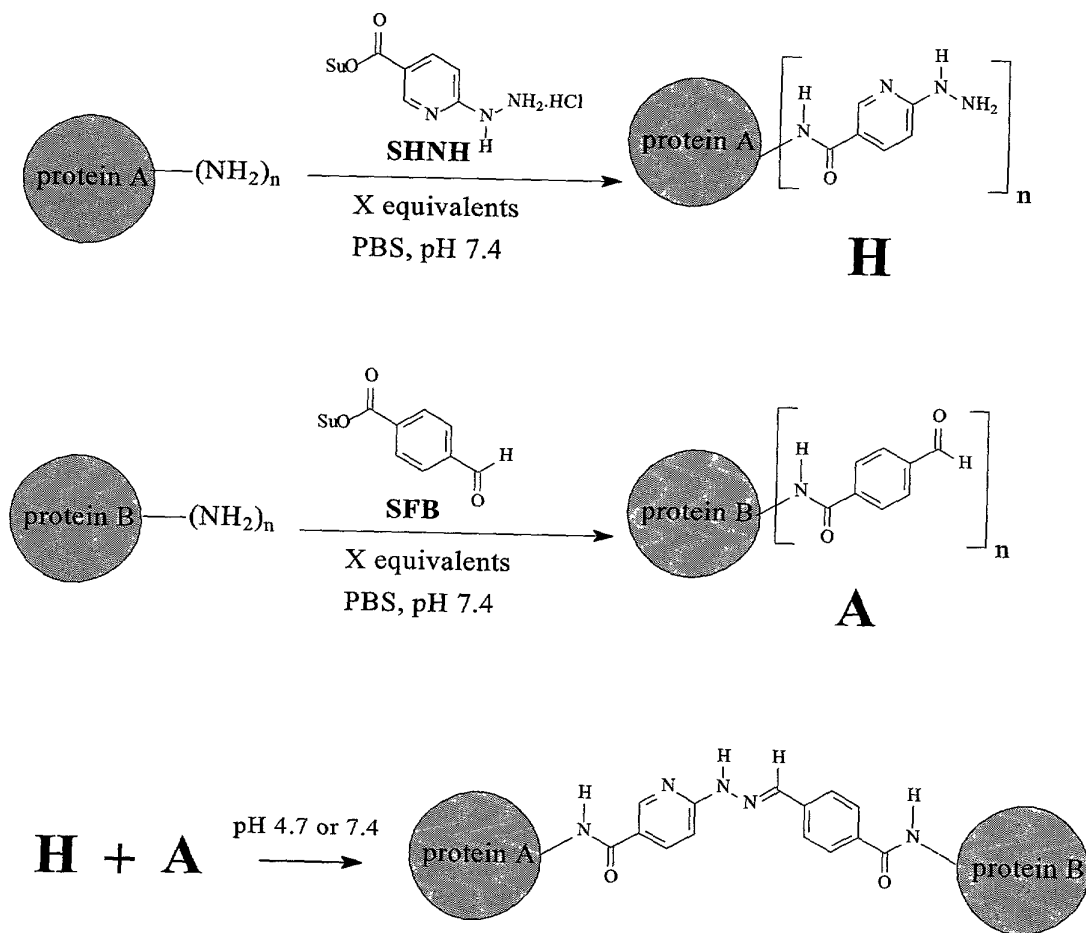


carbonic acid dihydrazine

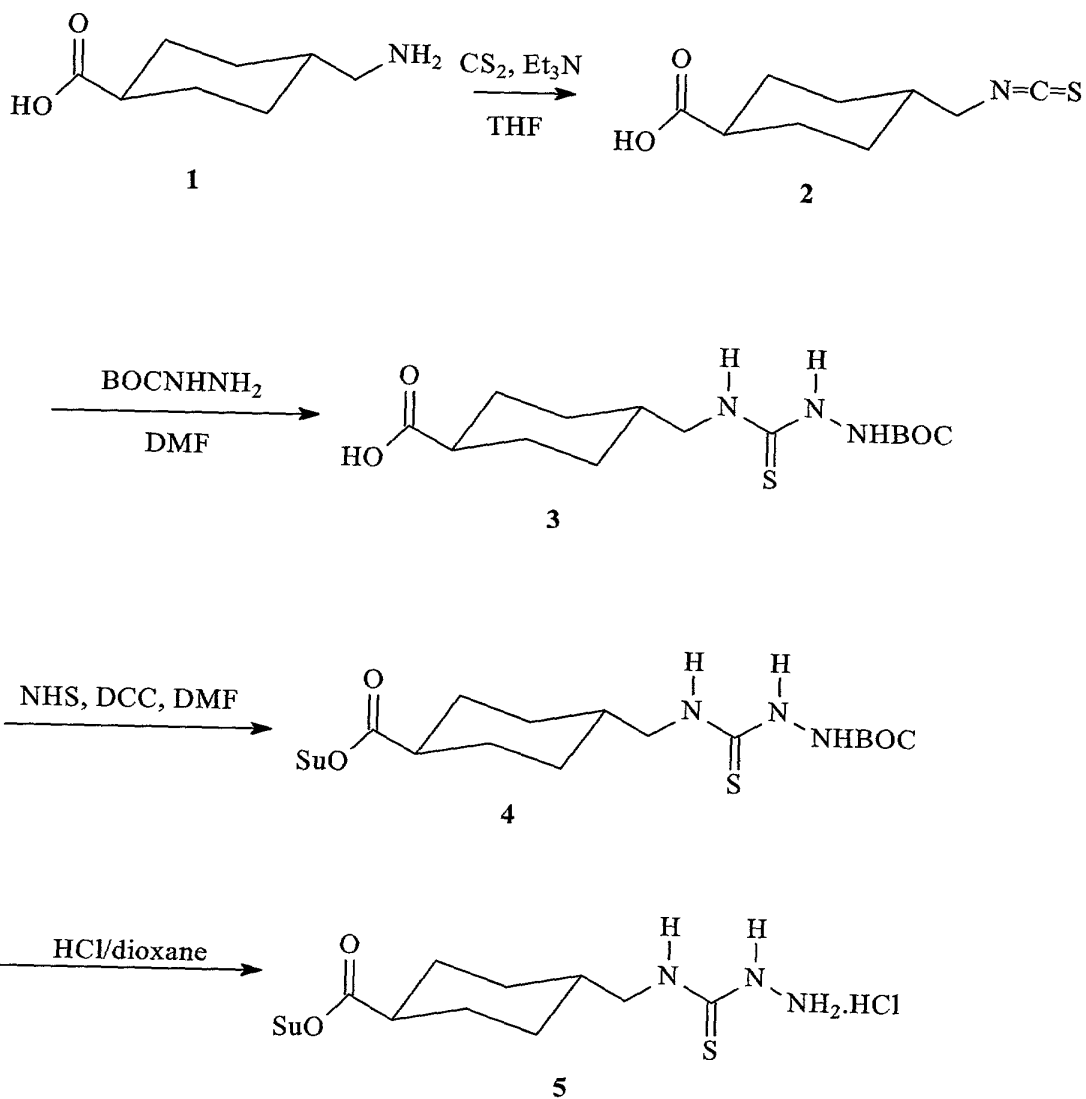


hydrazine carboxylate

## FIGURE 2



## FIGURE 3



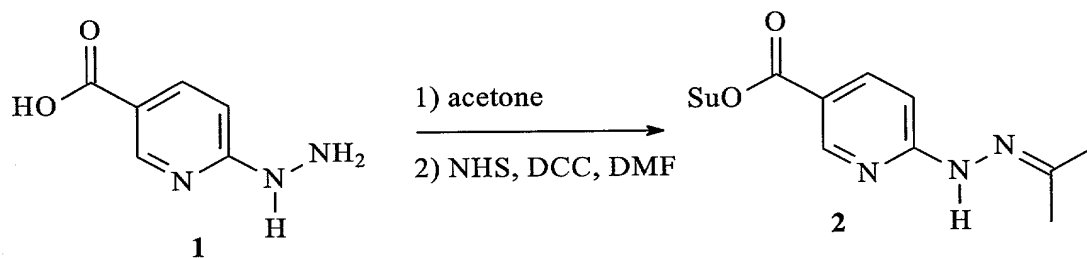
Title: HYDRAZINE-BASED AND C BASED BIFUNCTIONAL  
CROSSLINKING REAGENTS

Applicant: David A. Schwartz

Serial No. To be assigned

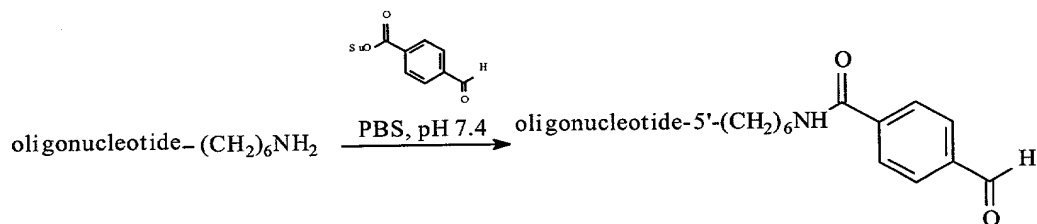
Filed: March 22, 2001

Our Docket No.: 37154-753

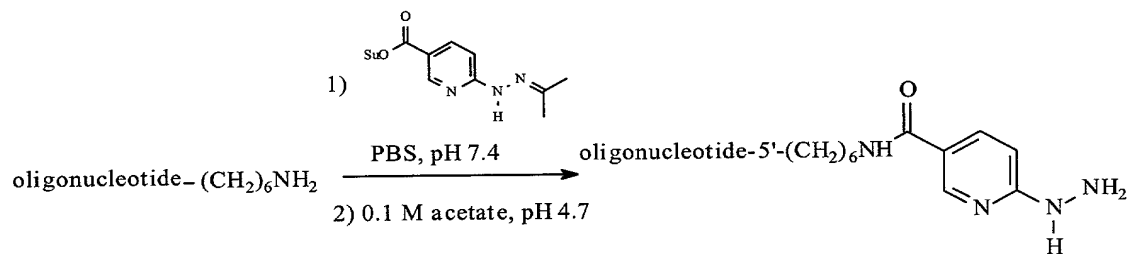
**FIGURE 4**

## FIGURE 5

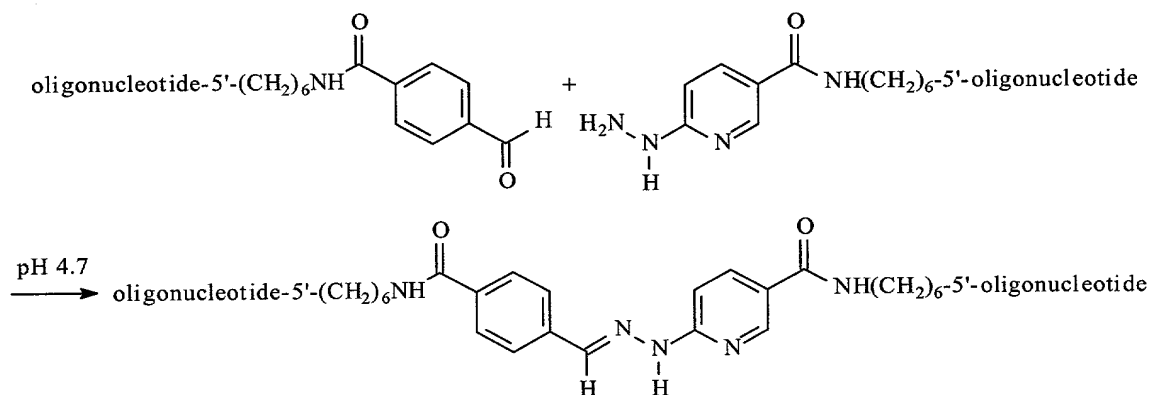
### Preparation of 5'-aromatic aldehyde-modified oligonucleotide:



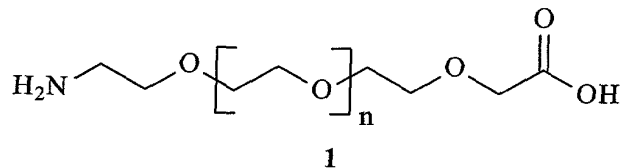
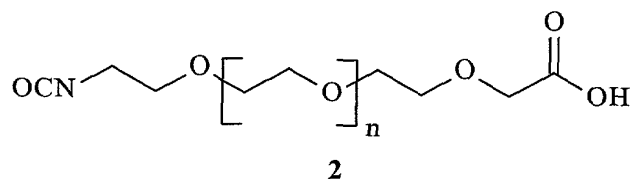
### Preparation of 5'-heteroaromatic hydrazine-modified oligonucleotide:



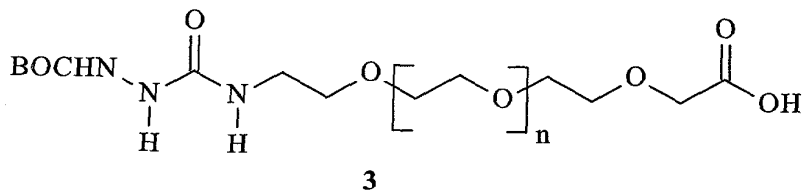
### Conjugation of hydrazino-modified oligonucleotide to aldehyde-modified oligonucleotide



## FIGURE 6

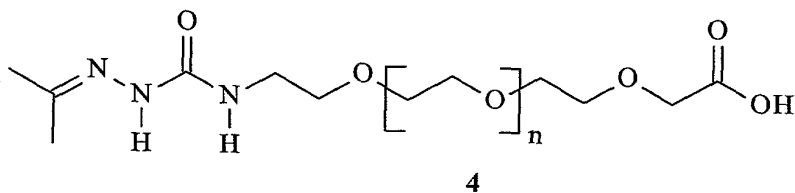
phosgene, Et<sub>3</sub>N, THF

t-butyl carbazate, THF



1) HCl/dioxane

2) acetone, MeOH



NHS, DCC, THF

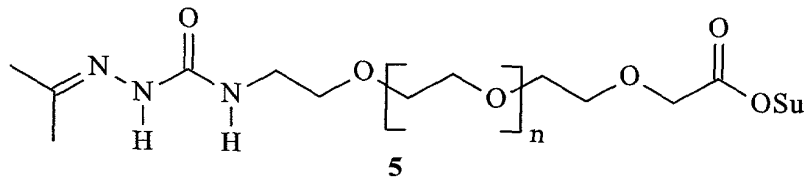
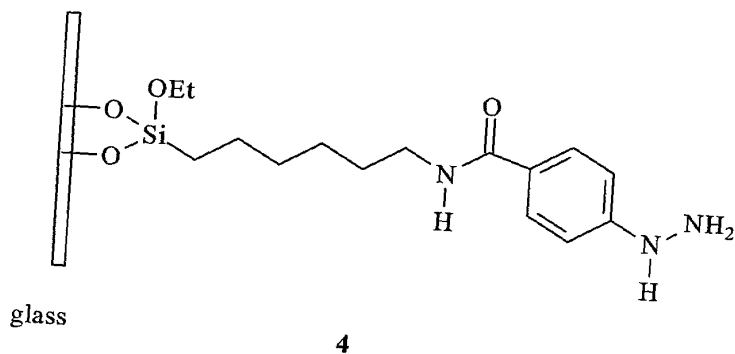
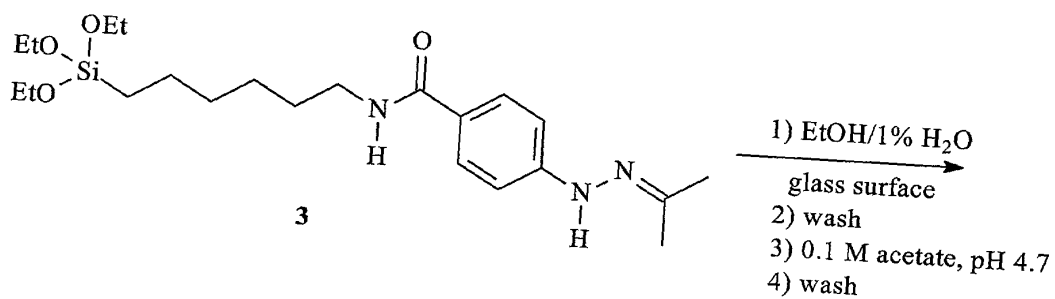
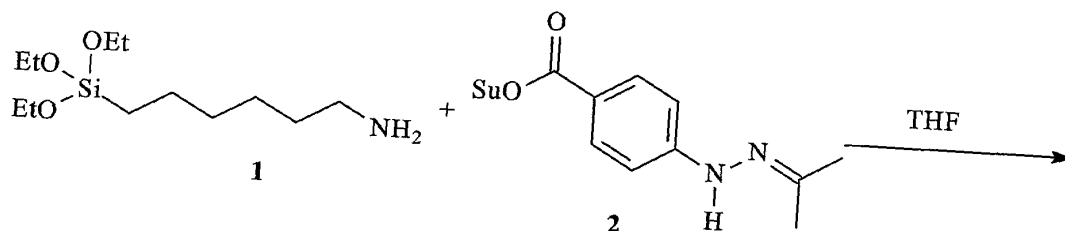
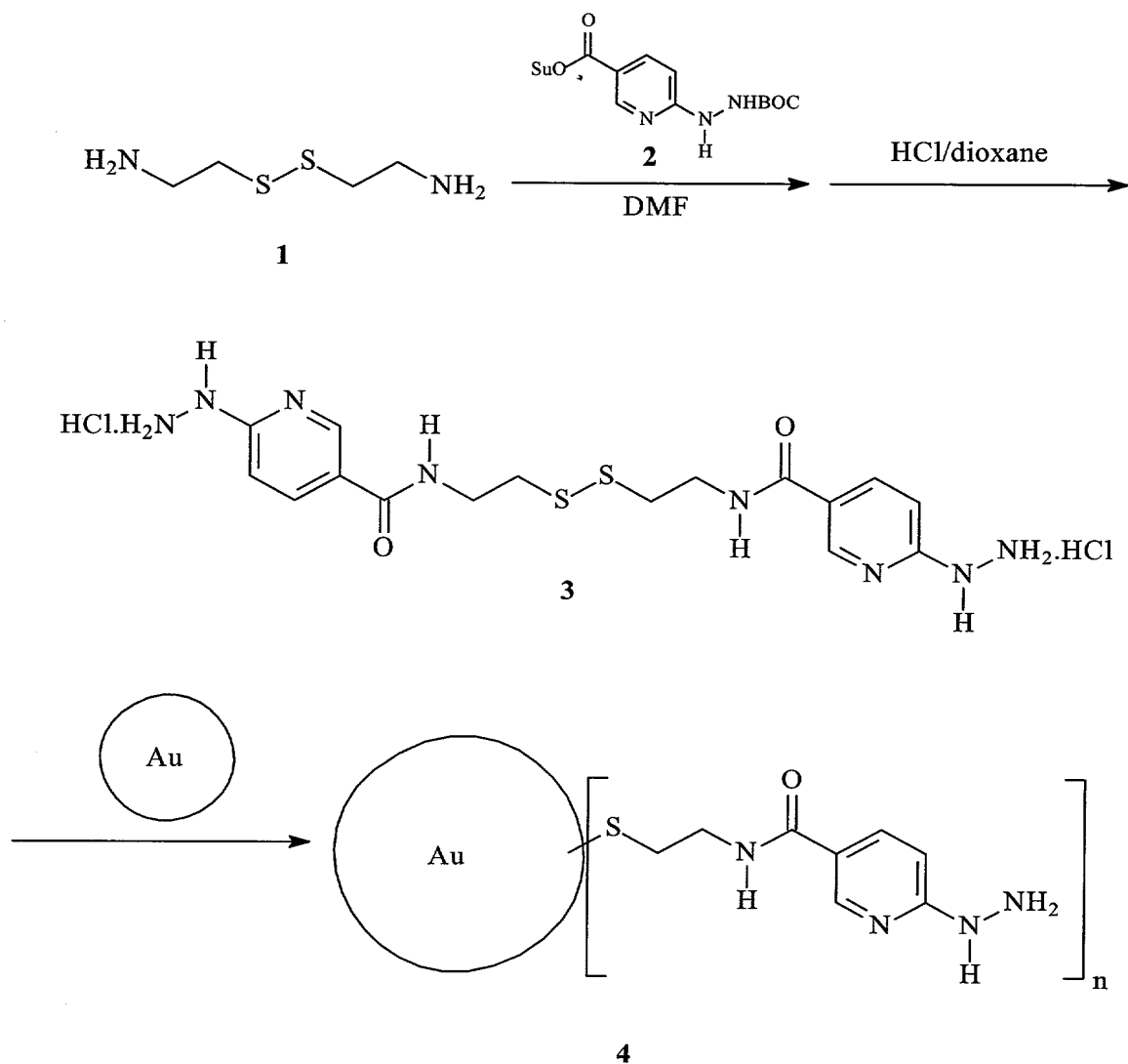


FIGURE 7



## FIGURE 8





## FIGURE 9

